

What is claimed is:

1. A radio communication system in which a first apparatus and a second apparatus perform a radio communication therebetween, said first apparatus comprising:

means for storing data to be transmitted; and

means for transmitting the data on a main-timeslot, while transmitting part of the data stored on a sub-timeslot different from the main-timeslot, and

10 said second apparatus comprising:

means for detecting an error on the data transmitted on the main-timeslot; and

means for outputting the data as received data when the error is not detected on the data, while outputting, as received data, data obtained by using another data transmitted on the sub-timeslot and the data transmitted on the main-timeslot when the error is detected on the data.

2. The radio communication system according to claim 1, wherein data to be transmitted on the main-timeslot is subjected to puncture processing in coding, and another data to be transmitted on the sub-timeslot is a whole or part of the data deleted by the puncture processing.

25 3. The radio communication system according to claim 1, wherein said second apparatus further comprises means for estimating a received quality on data, and means

for transmitting a result of an estimation to said first apparatus, and based on the result of the estimation, said first apparatus transmits on the sub-timeslot data of a portion providing a poor received quality in said
5 second apparatus.

4. The radio communication system according to claim 1, wherein modulation on data is an M-ary modulation scheme, and said first apparatus transmits on the sub-timeslot data assigned to a bit tending to be erroneous
10 in the M-ary modulation scheme.

5. The radio communication system according to claim 4, where a modulation scheme on data to be transmitted on the main-timeslot is different from a modulation scheme on another data to be transmitted on the sub-timeslot.

15 6. The radio communication system according to claim 1, wherein the another data to be transmitted on the sub-timeslot is assigned to one time slot with data to be transmitted to another user.

7. The radio communication system according to
20 claim 1, wherein only when a traffic amount of the system is small, transmission using the sub-timeslot is performed.

8. The radio communication system according to claim 2, wherein corresponding to a communication quality,
25 a puncture rate in the puncture processing in coding and a modulation scheme used in transmitting the sub-timeslot are controlled while being adaptively switched.

9. The radio communication system according to claim 1, wherein a timeslot with a new burst length is composed by combining portions corresponding to the main-timeslot and to the previous sub-timeslot.

5 10. A radio communication system in which a first apparatus and a second apparatus perform a radio communication therebetween, said first apparatus comprising:

means for storing data to be transmitted; and

10 means for transmitting the data on a main-timeslot, while transmitting part of the data stored on a sub-timeslot different from the main-timeslot, and said second apparatus comprising:

15 means for outputting, as received data, data obtained by using another data transmitted on the sub-timeslot and the data transmitted on the main-timeslot.

20 11. A radio communication system in which a first apparatus and a second apparatus perform a radio communication therebetween, said second apparatus comprising:

means for estimating a received quality on data;

means for transmitting a result of an estimation to said first apparatus; and

25 means for outputting, as received data, data obtained by using data transmitted on a sub-timeslot and data transmitted on a main-timeslot, and

said first apparatus comprising:

means for storing data to be transmitted;

means for transmitting the data on the main-timeslot
by Frequency Hopping; and

5 means for transmitting, based on the result of the
estimation, data of a portion providing a poor received
quality in said second apparatus on the sub-timeslot.